

What is claimed is:

1. An enabling circuit for enabling a DC to DC converter having a capacitor coupled to an output terminal of said DC to DC converter to be controlled by a control signal, said enabling circuit comprising:

a comparison circuit configured to compare a first comparison signal representative of a charge on said capacitor with a second comparison signal representative of a reference charge and provide a comparison output signal in response to said comparison;

a switching circuit configured to accept said comparison output signal, and in response to at least said comparison output signal provide a first switching signal in a first state if said charge on said capacitor is less than said reference charge; and

an output decision circuit configured to accept at least said first switching signal and provide an enabling signal to enable said DC to DC converter to be controlled by said control signal in response to said first switching signal in said first state.

2. The enabling circuit of claim 1, wherein said output decision circuit is further configured to accept a condition signal and wherein said output decision circuit provides said enabling signal if said first switching signal is in said first state and said condition signal is in a state representative of a desired charging state.

3. The enabling circuit of claim 2, wherein said output decision circuit comprises an AND gate, said AND gate accepting said first switching signal and said condition signal.

4. The enabling circuit of claim 1, wherein said switching circuit further provides a second switching signal in a first state if said charge on said capacitor is greater than said reference charge and in a second state if said charge on said capacitor is less than said reference charge, and wherein said enabling circuit further comprises a discharge path responsive to said second switching signal to discharge said capacitor if said second switching signal is in said first state.

5. The enabling circuit of claim 4, wherein said discharge path comprises a switch, said switch responsive to said second switching signal to close if said second switching signal is in said first state and to open if said second switching signal is in said second state.

6. The enabling circuit of claim 1, wherein said switching circuit comprises an RS flip flop.

7. A battery charging system comprising:

a DC to DC converter configured to accept an input power level from a DC power source and provide a regulated output power level to a rechargeable battery, said DC to DC converter having a capacitor coupled to an output terminal of said DC to DC converter; and

an enabling circuit for enabling said DC to DC converter to be controlled by a control signal, said enabling circuit comprising:

a comparison circuit configured to compare a first comparison signal representative of a charge on said capacitor with a second comparison signal representative of a reference charge and provide a comparison output signal in response to said comparison;

a switching circuit configured to accept said comparison output signal, and in response to at least said comparison output signal provide a first switching signal in a first state if said charge on said capacitor is less than said reference charge; and

an output decision circuit configured to accept at least said first switching signal and provide an enabling signal to enable said DC to DC converter to be controlled by said control signal in response to said first switching signal in said first state.

8. The system of claim 7, wherein said output decision circuit is further configured to accept a condition signal and wherein said output decision circuit provides said enabling signal if said first switching signal is in said first state and said condition signal is in a state representative of a desired charging state.

9. The system of claim 8, wherein said output decision circuit comprises an AND gate, said AND gate accepting said first switching signal and said condition signal.

10. The system of claim 7, wherein said switching circuit further provides a second switching signal in a first state if said charge on said capacitor is greater than said

reference charge and in a second state if said charge on said capacitor is less than said reference charge, and wherein said enabling circuit further comprises a discharge path responsive to said second switching signal to discharge said capacitor if said second switching signal is in said first state.

11. The system of claim 10, wherein said discharge path comprises a switch, said switch responsive to said second switching signal to close if said second switching signal is in said first state and to open if said second switching signal is in said second state.

12. The system of claim 7, wherein said switching circuit comprises an RS flip flop.

13. The system of claim 7, wherein said control signal comprises a pulse width modulated (PWM) signal.